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Reports a study based on a random sample of 100 male preenrolling freshmen at Kansas State University. The project was undertaken to help clarify and understand the possible discrepancies between student expectation and university expectation of the freshman student's first semester grades. Two questions were investigated: (1) Does a discrepancy exist between self-expectations of the first semester grades and the statistically based university expectation? (2) if a discrepancy does exist, is it constant for all scholastic ability levels?

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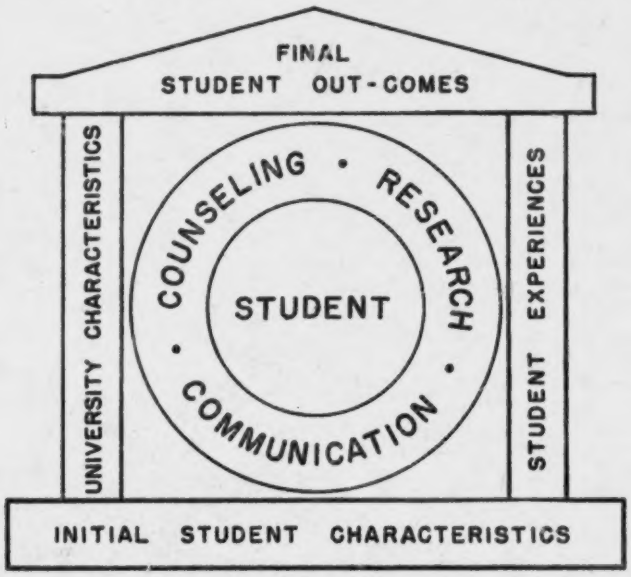
DIFFERENCES BETWEEN STUDENT-PREDICTIONS AND STATISTICAL PREDICTIONS OF FUTURE ACADEMIC SUCCESS: THE RELATIONSHIP OF THESE DIFFERENCES TO SCHOLASTIC ABILITY



KANSAS STATE UNIVERSITY
STUDENT COUNSELING CENTER
MANHATTAN

ED000917

Student Counseling Center

Kansas State University

Studies in Student Personnel Work

Research Report No. 21

DIFFERENCES BETWEEN STUDENT-PREDICTIONS AND STATISTICAL PREDICTIONS OF FUTURE ACADEMIC SUCCESS: THE RELATIONSHIP OF THESE DIFFERENCES TO SCHOLASTIC ABILITY

Project Director: LeRoy A. Stone

September, 1962

A random sample of 100 male pre-enrolling freshmen students at Kansas State University were asked to guess what probability they thought they would have during their first semester of earning a "below 'C' average," "'C' to 'B' average," and "'B' or better average." Ratios of expected high academic success to expected academic failure were computed. Also computed were similar ratios based upon statistical prediction information. These two sets of ratios were analyzed by means of an analysis of variance mixed design. A curvilinear relationship between self-expectancy academic optimism and scholastic ability was seen. Significant difference between self-expectancies and statistical expectancies were found except in the case of high ability students. Implications of these findings were discussed.

INTRCDUCTION

Entering freshmen students at KSU (or any other University) bring with them expectations, guesses, hunches, ideas, and beliefs of how well they are going to succeed academically. For many, these guesses or self-estimates are somewhat accurate, but for others, these self-expectations are quite unrealistic and are grounded only on fantasy and hope.

For each entering freshman, KSU also has an expectation, a guess, idea, or a belief of how well that student might succeed (at least during his first semester). Our guesses or expectations have proved to be somewhat accurate and are based on factual information, the student's ACT scores and his high school rank. This information is used in such a way that comparison of scores and ranks is made with those scores and ranks of previous freshmen groups. Our expectations are statistically based whereas the student's expectations may be colored by wants, needs, and desires.

Academic advisers frequently find, or at least suspect, that their freshmen advisees are not in complete agreement with our statistical expectations regarding the student's first semester grades. In order to help clarify and understand these possible discrepancies between student and university expectation of the freshman student's first semester grades, this present study was formulated.

PROBLEM

Specifically, the present study investigated the following:

1. Is there a discrepancy between self-expectations of the first semester grades and the statistically-based university expectation?

2. If there is a discrepancy, is it constant for all scholastic ability levels? In other words, do entering freshmen, regardless of scholastic ability, have the same ability to judge accurately what their first semester grades will be?

SAMPLE AND PROCEDURES

During the 1962 summer pre-enrollment sessions at Kansas State University, a random sample of 100 male freshmen was requested to estimate their probabilities of success relevant to the three schools at Kansas State University in which almost all male students enroll. They were asked to guess what chances (probabilities) they would have of earning for their first semester a "less than 'C' average," "'C' to 'B' average," and "'B' or better average" in the Schools of Agriculture, Arts and Sciences, and Engineering and Architecture. The probabilities for the "less than 'C' average" and for the "'B' or better average" categories were summed across the three schools for each student. The ratio of the "'B' or better average" to the "less than 'C' average" was then determined for each student. In a sense these could be thought of as ratios of expected nigh academic success to expected academic failure.

A statistical prediction system, currently used in the Student Counseling Center at Kansas State University, provided the probability statements for grade categories for these same students. Utilizing standard errors of estimate along with multiple regression principles, the probabilities of a student earning grades in the three before described grade categories for each of the before named schools at Kansas State University are easily computed. The predicted grade probabilities were based on ACT scores. Ratios of statistically predicted high academic success to statistically predicted academic failure were computed for each student in the same fashion as was described when using student self-predictions.

RESULTS

The student-prediction and statistical-prediction ratios were cast into a 2 $\underline{x}$ 4 classification where predictions constituted the rows and four levels of ACT composite score averages constituted the columns. These ratios were then analyzed for difference by analysis of variance methodology (Lindquist's Type I mixed design, Lindquist, 1953). The means for the eight cells were graphed and are presented in Figure 1. The analysis of variance results are presented in Table 1.

FIGURE 1

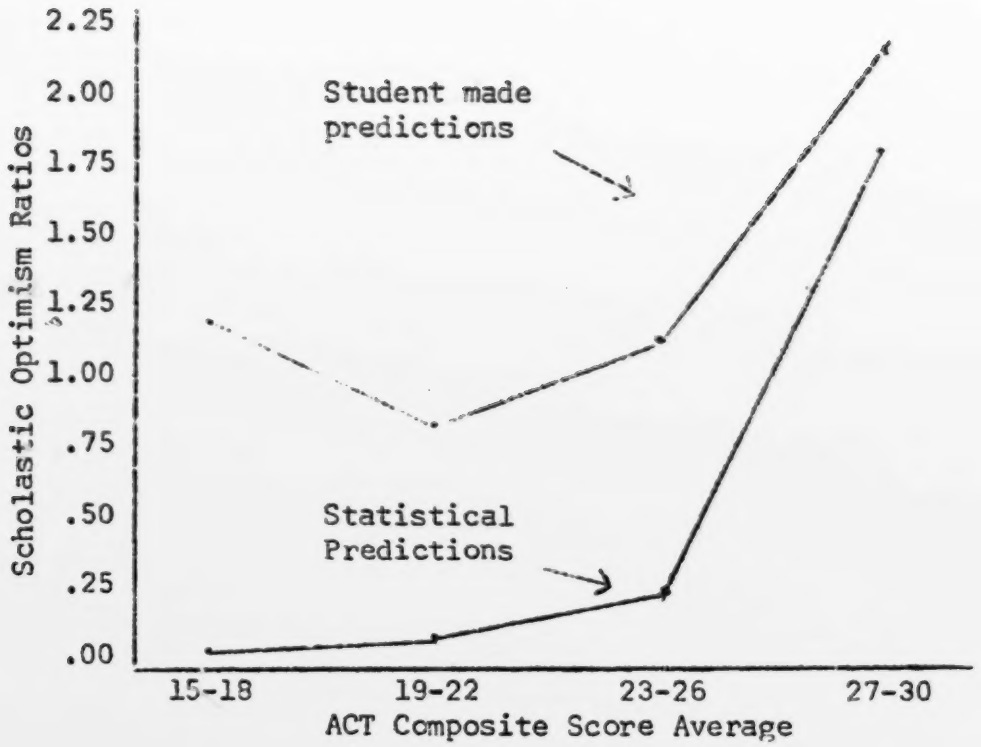


Figure 1. The relationship of student made and statistically generated scholastic optimism ratios to varying levels of measured scholastic aptitude.

Because the interaction effect was non-signigicant (in fact its F value was less than unity) the main effects could be directly interpreted. The F value for the four levels of scholastic ability was highly significant (beyond the .001 level). Trend analysis by means of the use of orthogonal polynomials (Edwards, 1960) revealed that highly significant (beyond the .001 level) linear and quadratic components were present. It was interesting to note that the curve based upon statistical prediction means was positively accelerating whereas the curve based upon student prediction means appeared to be a segment of a concave type of curve. It appeared that the lowest and highest scholastic ability students proclaimed the highest optimism regarding their academic future whereas the middle range (ACT composite score average of 19 to 26) were less optimistic. However, for all four scholastic ability levels, the student generated optimism ratio means were higher than were the statistically generated ratio means.

TABLE 1

Summary of Analysis of Predicted Academic Success Ratios

Source of Variation	df	ms	F
Between Subjects	99		
Scholastic Aptitude	3	25.09	36.36*
Linear Component	(1)	46.41	67.26*
Quadratic Component	(1)	19.06	27.62*
Error (b)	96	.69	
Within Subjects	100	20.63	
Types of Prediction	1	29.19	15.95*
Scholastic Aptitude X Types of Prediction	3	.59	
Error (w)	96	1.83	
Total	199		

*Significant at the .001 level

In order to test the differences between the student generated ratios and the statistically generated ratio means, the Duncan multiple range test was used (Kramer 1956) and the results of this analysis are presented in Table 2.

Inspection of Table 2 shows that for all measured scholastic ability levels with the exception of the highest level, the difference between student prediction ratios and their corresponding statistically based prediction ratios are significantly different (.05 level).

TABLE 2

Duncan Multiple Range Test Evaluation of the Student and Statistically Generated Scholastic Optimism Ratios

Means Arranged* In Order	Type of Prediction	Range of ACT Composite Score Average
.01**	Statistical	15-18
.05	Statistical	19-22
.25	Statistical	23-26
.82	Student	19-22
1.11	Student	23-26
1.19	Student	15-18
1.79	Statistical	27-30
2.16	Student	27-30

*Any two means not sidescored by the same line are significantly different (.05 level). Any two means sidescored by the same line are not significantly different (.05 level).

**Low numerical value of the means indicates low scholastic optimism whereas the higher value indicates progressively more scholastic optimism.

DISCUSSION

With the exception of the high scholastic ability male student group, the differences between student and statistical prediction of future academic success were significantly different. For all varying ability groups the student self-prediction optimism measures were more optimistic than were the statistically generated measures. This is like saying that the institution is less optimistic regarding the future academic success of incoming freshmen students than are the students themselves. This finding is somewhat consistent with a study done by Holt (1951) in which he compared self-ratings of ten college students with comparable ratings made

by a group of clinicians and on a number of factors concluded that the more highly intelligent knew themselves the best. These kinds of findings suggest that college or university personnel working in advisement, guidance, and counseling with incoming freshmen students might have ideas of regarding the student's chances of success in college quite different from the ideas held by the students themselves. It is suggested that the greatest discrepancy involving optimism about future academic success occurs with those students who score lowest on a scholastic aptitude test.

Reasons for the unwarranted optimism of the lower ability students is not known, but a few hypotheses are offered. The most obvious being that the ability to accurately judge one's own chances in a competitive situation is a function of general intellectual ability. Another explanation may be that a form of perceptual defense takes place in lower ability students. For ego-defensive reasons, competitive or threatening situations are viewed in an unjustifiably optimistic manner.

These findings possibly suggest some important implications to advisers and guidance-counselors in that one should not assume that students perceive their academic chances proportional to their scholastic ability. If such self-expectation are strongly held by students, it is questioned how students view interpretation of scholastic ability tests. Since the discrepancy between student predictions and statistical predictions are slight for the higher scholastic ability students, it might be inferred that test interpretation is not antagonistic to the already held self-expectancies. However, the low scholastic ability students view their academic chances in a manner such that test interpretation might be highly antagonistic to their self-beliefs. The findings of the present study might be used to support an argument for different kinds of college entrance test interpretation depending upon the scholastic ability level of the student.

The results of the present study involve many limitations regarding possible generalization. The fact that only male students were involved was certainly a limitation. It is not known whether female students would have behaved in a similar

fashion. The size of the sample studied was rather small and quite possibly a selection factor pertaining to students who selected Kansas State University also limits any generalization of results. Another factor to consider is that the statistical predictions with which the student predictions were compared are only partially accurate. In no way should these statistical predictions be regarded as the "last word."

IMPLICATIONS OF THESE FINDINGS FOR KSU PERSONNEL WHO ADVISE AND COUNSEL WITH BEGINNING FRESHMEN STUDENTS

These research findings suggest that entering freshmen do not have accurate ideas relevant to their future academic success, their first semester grades. It was seen that low scholastic ability students possess a disproportionate amount of optimism regarding their first semester grades. For all of the scholastic ability levels studied, the students believed their chances of success were better than what the university believed about them based upon statistical prediction.

Freshmen advisers should be aware that their advisees are likely to be more optimistic about their academic success than the advisers will be when he, the adviser, uses the prediction information provided by the Student Counseling Center. Advisers should also be aware that the lower the measured scholastic ability of the advisee, the greater will be the chance that the advisee possesses unwarranted optimism regarding his chances for academic success during his first semester.

Types of counseling and advising techniques cannot be suggested or specified when student and university expectations, the student's chances for academic success are not in harmony. This manner of advisement is left to the individual adviser or counselor but the adviser-counselor should be aware: (1) that his students are generally over-optimistic, and (2) that the lower scholastic ability students are the most unrealistic in their optimism.

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